AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A fingerprint identification system, comprising:

a fingerprint identification terminal which inputs a fingerprint image and transmits said fingerprint image, or feature vector data extracted from said fingerprint image, to a fingerprint identification device, said fingerprint identification device conducts fingerprint identification of said fingerprint image based on said feature vector data transmitted from said fingerprint identification terminal, wherein

said fingerprint identification terminal inputs a plurality of first fingerprint images obtained more than once for one finger, calculates image quality of said plurality of first fingerprint images, and transmits information of said image quality to said fingerprint identification device, and

wherein said fingerprint identification device:

selects a plurality of fingerprint images from said plurality of first fingerprint images based on said information of said image quality,

collates said feature vector data of a plurality of said selected first fingerprint images with feature vector data of one or more second fingerprint images stored in a fingerprint data base,

obtains a plurality of collating results for said plurality of collated first fingerprint images, and

conducts fingerprint identification determination based on said plurality of collating results for said plurality of collated first fingerprint images.

2. (previously presented): The fingerprint identification system as set forth in claim 1 wherein

said fingerprint identification terminal includes

a scanner interface unit having a function of receiving input of a plurality of fingerprint images per finger from an external fingerprint scanner device,

a main memory for holding said plurality of fingerprint images from said external fingerprint scanner device, and

a main control unit for calculating image quality of each of the plurality of fingerprint images held in said main memory, ranking the plurality of fingerprint images in said main memory in descending order of quality and selecting a preset number of high-quality images to calculate first feature vector data of a fingerprint from the selected high-quality fingerprint image.

3. (previously presented): The fingerprint identification system as set forth in claim 2, wherein

said fingerprint identification terminal includes

a communication input/output control unit having a function of transmitting said selected high-quality fingerprint image or the first feature vector data of the selected high-quality

fingerprint image to said fingerprint identification device and a function of receiving identification result data returned from said fingerprint identification device.

4. (original): The fingerprint identification system as set forth in claim 2, wherein

said fingerprint identification terminal includes:

a console display unit capable of displaying any of confirmation indication, processing state indication and fingerprint identification processing result indication of the plurality of fingerprint images stored in said main memory or an arbitrary combination of these indications, and

an input unit for receiving input for changing a display method of said console display unit and changing condition data for use in fingerprint identification which is set in advance in the processing of said main control unit.

5. (canceled).

6. (previously presented): The fingerprint identification system as set forth in claim 1, wherein

said fingerprint identification terminal includes

a scanner interface unit having a function of receiving input of a plurality of fingerprint images per finger from an external fingerprint scanner device,

a main memory for holding said plurality of fingerprint images, and

a main control unit for calculating image quality of each of the plurality of fingerprint images held in said main memory, ranking the plurality of fingerprint images in said main memory in descending order of quality and selecting a preset number of high-quality images to calculate first feature vector data of a fingerprint from the selected high-quality fingerprint image, and

said fingerprint identification device

receives input of the first feature vector data of each of the plurality of fingerprint images for one finger, and

following a procedure predetermined according to the order of fingerprint image quality corresponding to each said fingerprint image, selects execution of either one-to-N matching or one-to-one matching between said first feature vector data and said second feature vector data, executes the selected matching processing, selects first feature vector data of a fingerprint image to be targeted next based on the determination whether each matching result satisfies preset conditions or not and repeats either one-to-N or one-to-one matching of the first feature vector data with said second feature vector data to output an identification result of the plurality of fingerprint images.

7. (original): The fingerprint identification system as set forth in claim 1, wherein

said fingerprint identification device

receives input of the first feature vector data of each of the plurality of fingerprint images for one finger and

conducts one-to-N matching of all of the first feature vector data with the second feature vector data to select only the identification scores that satisfy preset conditions starting with a score having the largest value, conducts fusion operation of the selected identification score with identification scores corresponding to a plurality of feature vector data of the same finger to calculate a fusion score, and outputs an identification result based whether the fusion score satisfies preset identification conditions.

8. (original): The fingerprint identification system as set forth in claim 1 , wherein

said fingerprint identification device receives input of each feature vector data of a plurality of fingerprint image data for each of a plurality of fingers to output an identification result with a representative score calculated from said feature vector data of the plurality of fingerprint images of each finger in combination with a result of whether the representative score of each finger satisfies preset conditions.

9. (original): The fingerprint identification system as set forth in claim 1, wherein

said fingerprint identification device

receives input of each feature vector data of a plurality of fingerprint image data for each of a plurality of fingers to obtain a representative score calculated from said feature vector data of the plurality of fingerprint images of each finger, and

calculates a fusion score based on the representative score of each finger to output a result of whether the fusion score satisfies preset identification conditions as an identification result.

10. (currently amended): A fingerprint identification method in a fingerprint identification system comprising a fingerprint identification terminal which inputs a fingerprint image and transmits said fingerprint image, or feature vector data extracted from said fingerprint image, to a fingerprint identification device, said fingerprint identification device conducting fingerprint identification of said fingerprint image based on said feature vector data transmitted from said fingerprint identification terminal, comprising the steps of:

at said fingerprint identification terminal,

inputting a plurality of first fingerprint images obtained more than once for one finger,

calculating image quality of said plurality of first fingerprint images, and

transmitting information of said image quality to said fingerprint identification device, and

at said fingerprint identification device,

selecting a plurality of fingerprint images from said plurality of first fingerprint images based on said information of said image quality,

collating said feature vector data of a plurality of said selected first fingerprint images with feature vector data of one or more second fingerprint images stored in a fingerprint data base,

obtaining a plurality of collating results for said plurality of collated first fingerprint images, and

conducting fingerprint identification determination based on a plurality of collating results for said plurality of collated first fingerprint images.

11. (original): The fingerprint identification method as set forth in claim 10, wherein

said fingerprint identification terminal receives and displays identification result data of said fingerprint images obtained by said fingerprint identification device.

12. (previously presented): The fingerprint identification method as set forth in claim 10, wherein

said fingerprint identification terminal,

receives input of a plurality of fingerprint images per finger from an external fingerprint scanner device by a scanner interface unit,

holds said plurality of fingerprint images in a main memory,

calculates image quality of each of the plurality of fingerprint images held in said main memory,

ranks the plurality of fingerprint images in said main memory according to said quality in descending order of quality to select a preset number of high-quality images,

calculates first feature vector data of a fingerprint from said selected high-quality fingerprint image and sends said selected high-quality fingerprint image or the first feature vector data of the selected high-quality fingerprint image to said fingerprint identification device, and

receives identification result data returned from said fingerprint identification device.

13. (canceled).

14. (original): The fingerprint identification method as set forth in claim 10, wherein said fingerprint identification device

receives input of the first feature vector data of each of the plurality of fingerprint images for one finger and

conducts one-to-N matching of all of the first feature vector data with the second feature vector data to select only the identification scores that satisfy preset conditions starting with a score having the largest value, conducts fusion operation of the selected identification score with identification scores corresponding to a plurality of feature vector data of the same finger to calculate a fusion score, and outputs an identification result based whether the fusion score satisfies preset identification conditions.

15. (original): The fingerprint identification method as set forth in claim 10, wherein said fingerprint identification device

receives input of each feature vector data of a plurality of fingerprint image data for each of a plurality of fingers to output an identification result with a representative score calculated from said feature vector data of the plurality of fingerprint images of each finger in combination with a result of whether the representative score of each finger satisfies preset conditions.

16. (original): The fingerprint identification method as set forth in claim 10, wherein said fingerprint identification device

receives input of each feature vector data of a plurality of fingerprint image data for each of a plurality of fingers to obtain a representative score calculated from said feature vector data of the plurality of fingerprint images of each finger, and

calculates a fusion score based on the representative score of each finger to output a result of whether the fusion score satisfies preset identification conditions as an identification result.

17. (currently amended): A computer-readable medium encoded with a fingerprint identification program in a fingerprint identification system comprising a fingerprint identification terminal which inputs a fingerprint image and transmits said fingerprint image, or feature vector data extracted from said fingerprint image, to a fingerprint identification device, said fingerprint identification device conducting fingerprint identification of said fingerprint image based on said feature vector data transmitted from said fingerprint identification terminal,

said fingerprint identification terminal to execute the functions of:

inputting a plurality of first fingerprint images obtained more than once for one finger, calculates image quality of said plurality of first fingerprint images, and

transmitting information of said image quality to said fingerprint identification device, and

said fingerprint identification device to execute the functions of:

selecting a plurality of fingerprint images from said plurality of first fingerprint images based on said information of said image quality,

collating said feature vector data of a plurality of said selected first fingerprint images with feature vector data of one or more second fingerprint images stored in a fingerprint data base,

obtaining a plurality of collating results for said plurality of collated first fingerprint images, and

conducting fingerprint identification determination based on a plurality of collating results for said plurality of collated first fingerprint images.

18. (canceled).

19. (previously presented): The computer-readable medium encoded with a fingerprint identification program as set forth in claim 17, which causes said fingerprint identification device to execute the functions of:

receiving input of the first feature vector data of each of the plurality of fingerprint images for one finger and conducting one-to-N matching of all of the first feature vector data with the second feature vector data to select only the identification scores that satisfy preset conditions starting with a score having the largest value,

conducting fusion operation of the selected identification score with identification scores corresponding to a plurality of feature vector data of the same finger to calculate a fusion score, and

outputting an identification result based whether the fusion score satisfies preset identification conditions.

20. (previously presented): The computer-readable medium encoded with a fingerprint identification program as set forth in claim 17, which causes said fingerprint identification device to execute the function of:

receiving input of each feature vector data of a plurality of fingerprint image data for each of a plurality of fingers to output an identification result with a representative score calculated from said feature vector data of the plurality of fingerprint images of each finger in combination with a result of whether the representative score of each finger satisfies preset conditions.

21. (previously presented): The computer-readable medium encoded with a fingerprint identification program as set forth in claim 17, which causes said fingerprint identification device to execute the function of:

receiving input of each feature vector data of a plurality of fingerprint image data for each of a plurality of fingers to obtain a representative score calculated from said feature vector data of the plurality of fingerprint images of each finger, and

calculating a fusion score based on the representative score of each finger to output a result of whether the fusion score satisfies preset identification conditions as an identification result.

22. (previously presented): A fingerprint identification system as set forth in claim 1, wherein

said fingerprint identification device selects a plurality of fingerprint images from said plurality of first fingerprint images according to said image quality in an order starting from highest quality image.

23. (previously presented): A fingerprint identification method as set forth in claim 10, wherein

said fingerprint identification device selects a plurality of fingerprint images from said plurality of first fingerprint images according to said image quality in an order starting from highest quality image.

24. (previously presented): The computer-readable medium encoded with a fingerprint identification program as set forth in claim 17, wherein said fingerprint identification device to execute the function of:

selecting a plurality of fingerprint images from said plurality of first fingerprint images according to said image quality in an order starting from highest quality image.

25. (currently amended): A fingerprint identification device which conducts fingerprint identification of a fingerprint image based on a feature vector data transmitted from a fingerprint identification terminal, said fingerprint identification terminal inputs a fingerprint image and transmits said fingerprint image, or feature vector data extracted from said fingerprint image, to said fingerprint identification device, wherein

said fingerprint identification terminal inputs a plurality of first fingerprint images obtained more than once for one finger, calculates image quality of said plurality of first fingerprint images, and transmits information of said image quality to said fingerprint identification device, and

said fingerprint identification device:

selects a plurality of fingerprint images from said plurality of first fingerprint images based on said information of said image quality received from said fingerprint identification terminal,

collates said feature vector data of a plurality of said selected first fingerprint images with feature vector data of one or more second fingerprint images stored in a fingerprint data base,

obtains a plurality of collating results for said plurality of collated first fingerprint images, and

conducts fingerprint identification determination based on a plurality of collating result for said plurality of collated first fingerprint images.

26. (previously presented): A fingerprint identification device as set forth in claim 25, wherein

said fingerprint identification device selects a plurality of fingerprint images from said plurality of first fingerprint images according to said image quality in an order starting from highest quality image.

27. (previously presented): The fingerprint identification device as set forth in claim 25, wherein

said fingerprint identification device receives input of the first feature vector data of each of the plurality of fingerprint images for one finger and conducts one-to-N matching of all of the first feature vector data with the second feature vector data to select only the identification scores that satisfy preset conditions starting with a score having the largest value,

conducts fusion operation of the selected identification score with identification scores corresponding to a plurality of feature vector data of the same finger to calculate a fusion score, and

outputs an identification result based whether the fusion score satisfies preset identification conditions.

28. (previously presented): The fingerprint identification device as set forth in claim 25, wherein

said fingerprint identification device receives input of each feature vector data of a plurality of fingerprint image data for each of a plurality of fingers to output an identification result with a representative score calculated from said feature vector data of the plurality of fingerprint images of each finger in combination with a result of whether the representative score of each finger satisfies preset conditions.

29. (previously presented): The fingerprint identification device as set forth in claim 25, wherein

said fingerprint identification device

receives input of each feature vector data of a plurality of fingerprint image data for each of a plurality of fingers to obtain a representative score calculated from said feature vector data of the plurality of fingerprint images of each finger, and

calculates a fusion score based on the representative score of each finger to output a result of whether the fusion score satisfies preset identification conditions as an identification result.